Techniques for Making Weak Links and Marking Buoy Lines

How to Comply with the Atlantic Large Whale Take Reduction Plan As Amended January 10, 2002

Gear Research Team
Protected Resources Division
NMFS, Northeast Region

Lobster Fishery

Hog Rings

Tests were run in the laboratory on a variety of ropes using 3/4" hog rings to form an eye with the following results:

5 hog rings forming an eye in 3/8" poly-dac had an average strength of 470 pounds

7 hog rings forming an eye in 3/8" poly-dac had an average strength of 605 pounds

7 hog rings forming an eye in 3/8" poly-steel had an average strength of 540 pounds

7 hog rings forming an eye in 5/16" poly-dac had an average strength of 580 pounds

No significant variation was noted between wet and dry tests. Also, the length over which the hog rings were distributed (from 6" to 12") didn't significantly affect the strength.

Off the Shelf Weak Links

The Modern Mould Sliplink ™ is a knotless system based on the same theory as a jam cleat. In its present configuration its holding strength is 400 pounds.

Plante's Lobster Vents, Inc. has developed a swivel that incorporates a weak link. It is manufactured for different strengths (500, 600, 1100 etc.) as required. Attaching to it with eyes, splices, tucks or hog rings produces a knotless system.

Higher Strength Weak Links

A weak link technique suitable for higher loads is a spliced jumper (see photo in next column under "Weak Link Utilizing a Jumper"). The jumper should be selected to meet the required breaking strength (1100, 1500, 2000, etc.) based on tensile strength data from the manufacturer.

Buoy Line Marking

Buoy lines are to be marked with a 4" long mark of designated color, midway down the buoy line. Marks can be attached in a variety of ways. Shown at right are three simple methods that were tested and found to work satisfactorily under normal conditions. At the top, colored twine is seized around the line and woven between the strands. In the center the line was spray painted. This method requires that the rope be dry. At the bottom, colored electrical tape was wrapped in one direction and then back over itself to form two layers.

Gillnet Fishery

Off the Shelf Weak Link

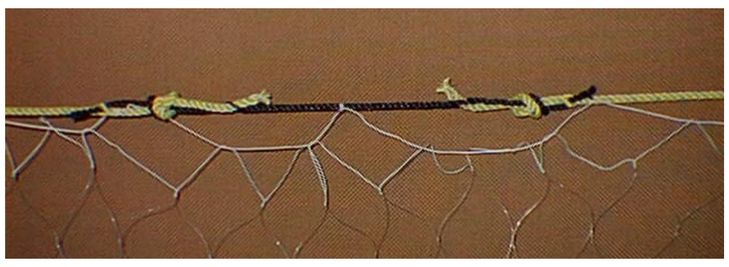
Plante's Lobster Vents, Inc. has developed a swivel that incorporates a weak link. It is manufactured for different strengths (500, 600, 1100 etc.) as required. Attaching to it with eyes, splices, tucks or hog rings produces a knotless system.

Weak Link Utilizing a Jumper

A weak link technique suitable for higher loads is a spliced jumper. The jumper should be selected to meet the required 1100 lb. breaking strength based on tensile strength data from the manufacturer.

Gillnet Float Rope Weak Links

Shown below are two methods of incorporating weak links into a gill net float rope. The top one shows a weak link jumper spliced into the float rope. The overhand knot in the jumper reduces its strength to about 60% of its original strength. For example, putting an overhand knot in a piece of 5/16" polypropylene that has an original tensile strength of 1710 pounds will make the rope fail with a load of about 1025 pounds. The bottom picture shows a weak link tied into the float rope with fisherman's knots. These knots also reduce the strength of the rope to about 60% of its original strength.



Buoy Line Marking

Buoy lines can be marked in a variety of ways, as described in the lobster gear section (far left) and pictured here.

Note: Weak links must be placed as close as operationally feasible to each individual buoy

Information about whale protection regulations can be found online at: http://www.nero.nmfs.gov/whaletrp/